IN THE CLAIMS

1. A sample container for the X-ray analysis of liquids, which container comprises:

a container wall which defines a cavity for receiving a liquid sample, the container wall being constructed so as to be at least locally transparent to X-rays and leaving open an opening at the top; and

a cover which is to be arranged on the free surface of the liquid sample and is not rigidly connected to the container wall.

2. A sample container as claimed in claim 1, wherein the cover is at least essentially impervious to gas.

3. A sample container as claimed in claim 1, wherein the cover is not absorbent.

4. A sample container as claimed in claim 1, wherein the cover is a foil.

5. A sample container as claimed in claim 1, wherein the cover comprises a polypropylene material.

6. A sample container as claimed in claim 1, wherein the cover is smaller than the opening at the top of the container wall.

7. A measuring device comprising:

a sample container for the X-ray analysis of liquids, which container comprises a container wall which forms a cavity for receiving a liquid sample, the container wall being constructed so as to be at least locally transparent to X-rays and leaving open an opening at the top, and cover which for arrangement on the free surface of the liquid sample and not rigidly connected to the container wall; and

an X-ray spectrometer for the analysis of a liquid sample accommodated in the sample container.

8. A method for the analysis of liquids by means of X-ray spectrometry, in which method a liquid sample is introduced into a sample container comprising a container wall which leaves open an opening at the top, the sample container is positioned in a sample holder and the liquid sample is analyzed, wherein prior to the analysis a cover which is freely movable relative to the container walls is provided on the free surface of the liquid sample.

9. A method as claimed in claim 8, wherein the sample holder is a sample container for the X-ray analysis of liquids, which container comprises a container wall which forms a cavity for receiving a liquid sample, the container wall being constructed so as to be at least locally transparent to X-rays and leaving open an opening at the top, and cover which for arrangement on the free surface of the liquid sample and not rigidly connected to the container wall